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ABSTRACT

This report of the National Conference on Elementary School Industrial Arts (ESIA) (1969-70) deals with the nature of industrial arts in the elementary school, different approaches and requirements for its implementation, and ways of meeting and solving problems. Section 1 defines ESIA. In section 2 a discussion of philosophical bases shows how industrial arts offers activities enhancing the learning process through concrete experiences, thought processes, learning processes, personal abilities, self concepts, and world of work. Section 3 identifies several approaches to ESIA, including limited classroom, comprehensive classroom, laboratory, traveling teacher, mobile laboratory, central laboratory, and summer school enrichment programs. Leadership characteristics and responsibilities of a national commission, state-level directors of ESIA, and local-level industrial arts specialists are listed in section 4. Section 5 discusses essential components of preservice and inservice teacher education programs--philosophical basis, technological content, tool and material exposure, environment for learning, opportunity to apply learning with children, involvement of resource persons and community resources (physical and human), techniques of gaining administrative involvement, and program evaluation. Eighteen recommendations for teacher education are listed. Section 6 lists persons in the educational professions, public, and industry to whom dissemination of information concerning ESIA should be directed. (YLB)

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Industrial Arts in the Elementary School: Education for a Changing Society

edited by

William R. Hoots, Jr., Ph.D.

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CE 025 665

Prepared as a Result of the

National Conference on Elementary School Industrial Arts

East Carolina University
Greenville, North Carolina
1971

1980 Reprint Sponsored by the

American Council for Elementary School Industrial Arts

An Affiliate of
The American Industrial Arts Association

FROM THE PRESIDENT

The American Council for Elementary School Industrial Arts, a council of the American Industrial Arts Association, was established in 1963 by forty nine individuals who felt that industrial arts experiences should be provided as a part of the elementary school experiences of all children. Membership in the council has grown over the years and so have the services which are provided by the council to the membership. We hope that those who have been affiliated with us have also grown. This publication is designed to continue this professional growth in an effort that we may make good educational experiences even better educational experiences for our elementary children.

The purposes of the council are to:

. . . clarify, promote and improve industrial arts and career education as a vital part of the elementary school curriculum.

. . . coordinate, on the national level, the efforts of all who contribute to the development of elementary school industrial arts and career education.

. . . publish materials relating to trends and issues in education for young children which will be of informational and practical use to the membership of the council.

. . . organize action which will facilitate the general purposes of ACESIA, including the receiving, holding and administration of funds and property.

For those wishing to become affiliated with the elementary council, information may be obtained by writing to:

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FOREWORD

This second printing of the report of the National Conference is being published by the American Council for Elementary School Industrial Arts in response to the many request. No changes have been made from the original manuscript, and the following is the foreword as it was in the first printing.

This publication is the result of the National Conference on Elementary School Industrial Arts, a group of twenty-one educators dedicated to quality education for boys and girls. Made possible by a grant from the U.S. Office of Education and the cooperative support of the American Council for Elementary School Industrial Arts, an affiliate organization of the American Industrial Arts Association, the conference consisted of three meetings which were held during the 1969-70 academic year.

Participants were selected on the basis of their outstanding work in the field of elementary school industrial arts; an effort was made to achieve a balance between teacher educators, supervisors, and people working with children in the classrom. Participants gave unselfishly of their time and efforts. Long after the final meeting, through reading and reacting to several versions of the report, they continued to contribute toward making the report truly representative of the conference.

The director of the conference expresses appreciation to Mr. William E. Heasley, Associate Professor of Industrial Arts at Kent State University, Kent, Ohio, who attended all three meetings as a visitor and made a significant contribution to the work of the group; to Mrs. Muriel S. Tapman, Educational Specialist, Vocational Education Training Branch, U.S. Office of Education, for her help

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The conference director would also like to express a special word of thanks and appreciation to each of the participants for his hard work, personal sacrifice, and congenial spirit with which he worked:

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INDUSTRIAL ARTS
IN THE ELEMENTARY SCHOOL
EDUCATION FOR A CHANGING SOCIETY

All who are concerned with the changes that are taking place in our society—the news media, economists, businessmen, and industrialists—insist that the phenomenal change that has taken place during the past decade is nothing compared with that to come. The age in which we live is one of such rapid change that even those who control and cause the change are frightened by its implications. The average citizen cannot completely comprehend the transformation; yet it is he who is creating the ensuing problem and his children who must cope with it.

Educators must awaken to the fact that they must keep pace with the changing technology. Many new innovative devices, composing what is termed *teaching technology*, have been developed to help teachers do a more effective job of teaching. But little has been done to change **what** is taught. Children need the exhilaration of manipulating materials, the joy of accomplishment and personal discovery as a part of growth and development and mental health. Children must learn about the world in which they live if they are to be expected to be productive and useful citizens in the world of tomorrow.

Industrial arts education is that part of the school curriculum that is dedicated to teaching boys and girls about the technological aspects of their environment. It, like all subjects, must start with the basic concepts and principles and build toward a full and complete comprehension. It, like all

subjects, must originate at the beginning of the child's education. Since there are aspects of technology that are appropriate for the kindergarten child, it is here that we must begin to build the child's understanding of his world.

The discussions that follow deal with the nature of industrial arts in the elementary school, different approaches and requirements for its implementation, and some ways of meeting and solving some of its problems.

A DEFINITION OF ELEMENTARY SCHOOL INDUSTRIAL ARTS

Industrial arts at the elementary school level is an essential part of the education of every child. It deals with ways in which man thinks about and applies scientific theory and principles to change his physical environment to meet his aesthetic and utilitarian needs. It provides opportunities for developing concepts through concrete experiences which include manipulation of materials, tools and processes, and other methods of discovery. It includes knowledge about technology and its processes, personal development of psychomotor skills, and attitudes and understandings of how technology influences society.

PHILOSOPHICAL BASES

Public schools in the United States are committed to a general education that will develop the full potential of all children. School systems differ in their approaches to the child, the environment, and the learning experiences; there is a divergence from highly structured to non-structured programs. Learning, for the most part has been oriented to the verbal and symbolic; little emphasis has been placed on the development of the nonverbal abilities of each child.

Each child brings to the learning situation a unique profile of development which has resulted from the sum total of his past experiences. Educators must therefore be able to recognize and deal with individual levels of child development in personal characteristics such as attitudes, values, self-concepts, knowledge, and psychomotor skills.

There are two fundamental dimensions in which the educational process operates and for which the educator must assume responsibility. The first is the physical setting; it includes materials, facilities, and media that stimulate both verbal and nonverbal responses in the learner. The second is the mode of organization; it governs the ways children learn within the physical setting. Effective learning takes place in a flexible learning situation that sets the stage for interaction, exploration, experimentation, problem solving, and concrete experiences that satisfy aesthetic and utilitarian needs. Learners are provided opportunities to

assume responsibility, to make decisions, to think, to receive immediate feedback, and to express themselves freely.

Industrial arts for the elementary school can satisfy these conditions for effective learning. The uniqueness of industrial arts lies in the fact that its activities can provide a greater variety of elements to enhance the learning process than any other single discipline.

Concrete Experiences

The major emphasis of elementary school industrial arts is upon concrete experiences dealing with manipulation and exploration of materials, tools, and processes. While processing materials (from raw to contrived) and fabricating objects, the child is involved in physical and mental manipulation of materials and sensory interaction with things. Through firsthand experiences he learns the characteristics, potentials, and limitations of materials and their cultural function.

Thought Processes

The thinking process which is unique to technology involves problem solving based upon the manipulation of materials. The more frequently children experience problem solving situations, the more fluent become their thought processes and the more easily they can make new associations. Their abilities to interpret through the language of forms increase, and they are building ideas about technological production and the social influences of technology. They are learning to live effectively in a technological culture

Learning Processes

Learning may become relevant, lasting, and both individually and socially oriented through elementary school industrial arts. The optimum learning situation provides:

1. Sensory data input through all sensory channels
2. Immediate feedback, opportunity to think in a problem solving way
3. Opportunity to try out ideas and test them against reality through nonverbal means

4. Opportunity to nurture creativity

Personal Abilities

The dynamic elementary school industrial arts program will foster the development of personal abilities that will help individuals to think in terms of real things or in lesser degrees of abstraction; to act with autonomy and self-direction; to solve problems; to make judgments; to increase control of the total body to perform tasks; to be increasingly creative and to perform creative operations at higher levels or degrees; and to develop organizational ability through more sophisticated means.

Self-Concepts

Positive self-concepts can be developed when children find success manipulating materials in realistic situations. The planning and production necessary to translate a visual image into a tangible form provides multiple satisfaction: one can satisfy the drive to master something outside of self, which is innate in everyone; and he can take pride in individual accomplishment, in recognition from others, and in the resulting extension of self.

World Of Work

Understanding of industrial processes and insights into manufacturing and production, as well as exposure to and contact with the physical and material world, facilitates orientation to the world of work. Students attain respect for craftsmanship. Both in technical skills and in talents other than manipulation, they learn to appreciate ability in others, the acquisition of which, in itself, enhances human relationships. They discover the relationship of the world of work to their own abilities, limitations, and ambitions. Through the study of industrial arts, children can develop an orientation to the world of work that can lead to satisfying and meaningful occupational choices.

APPROACHES TO ELEMENTARY SCHOOL INDUSTRIAL ARTS

The organization and administration of industrial arts programs in the elementary school fall into several general categories. There is a vast difference both in content and facilities between minimum and maximum programs. Many elementary school programs are conducted by the regular classroom teachers utilizing portable tools and equipment; others involve specifically trained teachers who, in cooperation with other teachers of the schools, direct the work in laboratories or special facilities. Between these two extremes are various programs which are successful.

The following discussion is an attempt to identify several general types of programs. In practice, many programs may differ from these examples or may contain characteristics of more than one type. The philosophy of the local school district, the budget, the time, the classroom or laboratory space, and the personnel may also determine the approach to elementary school industrial arts in any school district.

Limited Classroom Program

The majority of the elementary school industrial arts progrmas are limited classroom programs, the term *limited* referring to the classroom time allowed for the industrial arts, to the tools and materials available to the students or to the direct assistance available from an industrial arts consultant. The activity is usually integrated with other subjects such as geography, history,

science, language arts, or art through tool skills, experimentation, problem solving, and the study of industrial processes. Characteristics of a limited classroom program are:

1. The program is conducted by the classroom teacher or teaching team.
2. Work is correlated with other subjects.
3. Activities are usually limited to short blocks of time.
4. Minimum selection of hand tools are used.
5. Tools and equipment are portable.
6. Services of an industrial arts specialists are minimal or non-existant.

Comprehensive Classroom Program

In a comprehensive classroom program, the classroom teacher has the advantage of regular assistance from an industrial arts consultant. School visitations by the consultant are frequent, and often many teachers of several grades are involved in the industrial arts program. A course of study is set up for all grades, and there is a planned curriculum with continuity and articulation from grade to grade.

Characteristics of the comprehensive classroom program are:

1. The classroom teacher directs the work with assistance from an industrial arts consultant.
2. The industrial arts consultant does not conduct the program but provides active assistance in the classroom for both teachers and students.
3. Industrial arts activities are related to other subjects, to the study of technology, and to the discovery of personal abilities and self-understanding.
4. Activities and content dictate the tools and equipment needed.
5. Tools and equipment are portable and may be utilized in several learning situations.
6. Work is scheduled on the basis of a semester or a school year.
7. Regular in-service education is offered to teachers.

Laboratory Program

The trained industrial arts teacher who works in a laboratory program has a dual responsibility: (1) to direct, in cooperation with the classsroom teachers, a balanced industrial arts program for children: and (2) to provide in-service education for teachers.

The industrial arts teacher has an excellent opportunity to provide children with a variety of experiences which reflect modern technology and still maintain a balanced relationship with the elementary school curriculum.

The laboratory teacher should be one who has an industrial arts background and has had some training or exerience in elementary education.

A laboratory program is characterized by the following:

1. The industrial arts teacher directs the activities.
2. The classroom teacher cooperates in planning the work and assists in carrying out the objectives of the work.
3. Industrial arts has technology as its subject matter but at the same time complements the general elementary curriculum.
4. A regular schedule of classes is usually set up for each semester of the school year.
5. The elementary industrial arts course of study would be articulated by the cooperative efforts of the industrial arts teacher, the classroom teacher, and the school administrators.
6. Tools and equipment are appropriate to the content.

Traveling Teacher Program

The traveling industrial arts teacher functions in much the same way as the laboratory teacher. He may work in a classroom, a laboratory, a multipurpose room, or another designated facility. The primary difference is that he travels between two or more schools.

The traveling industrial arts teacher (1) visits two or more schools on a regular schedule and does the actual teaching; (2) plans the program with classroom teachers and the local administrator, centering the work around

local needs; and (3) uses tools and equipment permanently assigned to each school.

Mobile Laboratory Program

The mobile laboratory, usually staffed by an industrial arts specialist, is generally utilized in rural areas where schools are far apart and where schools are unable to afford teachers tools, and equipment of their own. This mobile unit may serve as a self-contained laboratory, or the tools and equipment may be unloaded and moved to other work areas. The equipped van or trailer may also serve as an in-service training facility for teachers.

The mobile laboratory teacher (1) moves from school to school with a self-contained unit; (2) works with children in the unit, in a classroom, or in other convenient work areas: (3) plans and works cooperatively with the faculty to serve local needs; and (4) conducts in-service education for teachers.

Central Laboratory Program

Certain circumstances may require the establishment of centralized industrial arts laboratories within a school district. In this situation children travel on a regularly scheduled basis to a center where programs are conducted by industrial arts specialists. To be most effective, industrial arts experiences and classroom instruction should be coordinated.

Summer School Enrichment Program

Many school districts offer enrichment studies as well as remedial work in summer programs. Art, music, drama, science, and industrial arts activities have been highly successful in various summer school organizations. There have been some innovative combinations such as theater arts or mathematics-science taught with industrial arts.

The summer period provides many opportunities for experimentation with numerous industrial experiences; it can be a very flexible program, providing for much individualized instruction, if its course of study is commensurate to that of an academic year program.

LEADERSHIP

A prime requisite of elementary school industrial arts is strong leadership. Leadership must come from within the individual school, from the local school district, from the state department of public instruction, from national educational organizations, and from other educational associations. Effective leadership is characterized by the following:

1. An understanding of child behavior, needs, and interests
2. Fimiliarity with the elementary school curriculum
3. Knowledge about trends and issues in elementary school industrial arts
4. Knowledge about technology and its social influences
5. Experience in industrial arts for children.

Leadership provided at national, state, and local levels should maintain a system of continuous communication. At the national level, there should be a commission assembled and charged with the following responsibilities:

1. Developing broad goals for elementary school industrial arts
2. Providing basic guidelines for:
   a. Curriculum development
   b. Tools and materials selection
   c. Pre-service and in-service education for teachers
   d. Research
   e. Evaluation
3. Studying available means for funding programs of elementary school industrial arts
4. Assisting in planning and developing pilot programs

5. Collecting and disseminating available information about existing elementary school industrial arts through working with professional and industrial organizations such as:
   a. American Industrial Arts Association
   b. American Council for Elementary School Industrial Arts
   c. American Vocational Association
   d. National Education Association
   e. Classroom Teacher's Association
   f. American Association of School Administrators
   g. Association for Supervision and Curriculum Development
   h. Association of Childhood Education International
   i. Parent-Teacher Association
   j. Educational Organizations within industry
   k. School Board Association

There should be a Director of Elementary School Industrial Arts at the state level supported by state and/or federal funds. His responsibilities would include:

1. Coordinating efforts with national leadership
2. Implementing programs in his state by assisting local agencies in planning and developing
3. Compiling and making resource materials available to local programs
4. Serving as liason and coordinator of the efforts of various sections of the state department and industrial arts educators in the development of curriculum and instructional material
5. Maintaining a state-wide advisory committee of industrial arts leaders.

An industrial arts specialists at the local level supplies local leadership. His functions include:

1. Working with teachers and members of supportive staffs to establish industrial arts as an integral part of the curriculum
2. Coordinating the efforts of the teachers and administrators to improve instruction and enrich the curricu-

lum with industrial arts experiences

3. Making available materials, media, and other instructional aids
4. Providing a program of in-service education for elementary teachers
5. Working to improve the image of industrial arts in the community
6. Supporting an ongoing program of subjective and objective evaluation.

TEACHER EDUCATION

Special preparation is needed for the teachers who will be working in programs of elementary school industrial arts. Pre-service and in-service courses must be offered by teacher education institutions or by local school districts for both elementary school industrial arts specialists and for elementary classroom teachers. The following is a discussion of essential components of these pre-service and in-service teacher education programs.

Philosophical Basis

The success of any educational program is dependent upon the philosophy of the personnel who are charged with responsibility of organizing and conducting the program. Teacher education programs must help teachers develop an understanding of the philosophical basis previously discussed in this report.

Technological Content

Teachers of elementary school industrial arts must have a fundamental understanding of the technology from which the content of industrial arts is derived. This content needs to be thoroughly investigated in terms of what is appropriate for each grade level, how it can best be integrated into the curriculum of that particular grade, and what manipulative activities will best promote learning experiences. Major emphasis must be placed on the selection of technologically-oriented content and on the manipulative methods of teaching.

Tool and Material Exposure

An essential element in the preparation of teachers who will incorporate industrial arts into the elementary

school curriculum is a thorough exposure to the tools and materials of technology, including a variety of manipulative experiences designed to develop a level of confidence that will help the teacher feel comfortable using the tools and materials. An understanding of the broad range of tools and materials children at various stages of development are capable of using safely and successfully should also be developed, the accomplishment of which necessitates an understanding of the physical development of children.

Environment for Learning

An effective environment for learning is one in which children become totally involved in the learning process. This process involves such forms of learning as abstract concept development and manipulative exploratory experiences. Each classroom must provide ample opportunity for children to participate in formal and informal learning arrangements, including verbal and non-verbal media utilizing a variety of tools and materials. The facility must provide for the multitude of ways in which children learn and for varying rates of maturation.

Teacher education programs should emphasize the need for modifying existing classrooms to more broadly conceived educational arrangements. The environment should be flexible enough to allow constant change to take place. Tools and materials must be part of the total educational setting. Each item injected into the classroom affects the learner by directly influencing what he learns, how he learns, and the attitudes he develops toward other students and the school.

Opportunity to Apply Learning with Children

Children are the focal point of all elementary education and must therefore be an integral part of ementary school industrial arts teacher education programs.

Prospective teachers should have the opportunity to work with children. An opportunity to observe ongoing programs and to teach in them should be a part of all teacher education programs. This opportunity to apply

theory in a controlled learning situation prepares the prospective teacher for teaching industrial arts and is essential to his success as a teacher.

Involvement of Resource Persons

Elementary school industrial arts is concerned with children developing an understanding of technology and its effects upon man and society. The fact that technology touches upon every aspect of man's being necessitates the services of resource persons from outside of the educational environment. Ecologists, anthropologists, sociologists, industrialists, and psychologists are but a few of the resource persons who should be used to supplement the instruction in an industrial arts teacher education program.

Involvement of Community Resources, Physical and Human

Community resources are a vital part of the elementary school industrial arts program. The education of the elementary school child should extend beyond the confines of the classroom. Teachers who develop an attitude conducive to the involvement of community resources and who understand how these resources can be utilized effectively in the program not only provide effective learning but also strengthen the relationship between the school and the community.

Techniques for Gaining Administrative Involvement

School board members, administrators, and supervisors must be well informed if they are to be effective leaders of education in the elementary school. It is important that they understand the purposes, the functions, the content, the contributions, the potential, the problems, and the costs of elementary industrial arts programs in order to be supportive of them. Specific techniques can be utilized by elementary industrial arts personnel to elicit the support of administrators and board members. Since it is in the interest of the teacher to know these techniques, they should be included as topics of instruction in pre-service and in-service courses.

Program Evaluation

Evaluation is an essential part of any educational program, and effective evaluation can be accomplished only after objective evaluative criteria have been established. Institutions preparing elementary school industrial arts personnel should include specific techniques for developing the criteria and means of using them in the classroom.

Education for the Elementary Classroom Teacher

The primary responsibility for developing industrial arts activities and implementing them into the elementary school curriculum lies with the classroom teacher or team leader. He is acutely aware of both the needs of individual pupils and the nature of the curriculum and therefore is best qualified to select and develop activities that will provide maximum benefit for the children.

It is the elementary classroom teacher, frequently aided by an elementary school industrial arts specialist or consultant, who takes the initiative and supplies the rationale to bring about administrative support of the program. The teacher is responsible for the planning required to insure that materials, work facilities, and storage facilities are available when needed and in the quantity desired.

In addition to the other facets of the pre-service undergraduate curriculum for elementary education majors, at least six (6) semester hours of course work in elementary school industrial arts are necessary. The program should be of sufficient scope to insure that each potential classroom teacher understands the field of technology and how to make it an integral part of the elementary curriculum.

In-service education should be provided for elementary classroom teachers; it may take the form of workshops, institutes, evening classes, extension courses, professional programs, and others. These in-service studies may or may not carry college credit, but they should be conducted by industrial arts teacher educators, industrial

arts specialists, or other qualified educational personnel. Regardless of the approach used, in-service education expands and reinforces the teacher's ability to understand the field of technology and how to analyze it in order to provide appropriate learning experiences for children.

Education for the Elementary School Industrial Arts Specialist or Consultant

School districts should provide the services of elementary school industrial arts specialists or consultants in order to increase the effectiveness of the program. These specialists should be considered resource personnel rather than supervisors or directors. They should possess qualifications in both industrial arts and elementary education; they must be able to work with the ideas of others and must be resourceful in providing suggestions for activities appropriate to various grade levels and curricula areas. In many instances specialists will act as liaisons between the teachers and the administration regarding such matters as tools, materials, and time schedules.

Teacher education institutions offering a program in elementary school industrial arts should also provide an organized program of pre-service education for the preparation of elementary industrial arts specialists. Teacher education and industrial arts education can readily cooperate to design a blended curriculum with concentration in elementary school industrial arts. Offerings should consist of courses to provide an understanding of technology as a course of subject matter, courses to provide for the development of skills and knowledge about the materials and processes of industry, and others to develop an understanding of elementary school philosophy, elementary curriculum, and methods of teaching elementary children. This pre-service program should include work with elementary children in classroom situations.

An industrial arts or elementary teacher who, at the in-service level, desires to become an elementary school

industrial arts specialists should pursue a course of study similar to the one described above for the pre-service program. Because of varying backgrounds and educational qualifications, the in-service program should be tailored to meet individual needs. It should provide college credit which may be earned through extension courses, institutes, fellowships, or degree programs.

State departments of education should provide for professional certification for elementary school industrial arts specialists. This certification should be consistent with those requirements previously mentioned for the pre-service and in-service preparation of specialists.

Teacher Education

The teacher educator is a key person in the preparation of elementary school industrial arts personnel. Because of his far-reaching influence, he should bring to his position a background of educational qualifications and work experiences that include, especially, the fields of industrial arts, elementary education, and child growth and development. Graduate programs and post-doctoral work should be designed that would provide an adequate supply of qualified teacher educators in the field of elementary school industrial arts.

Recommendations for Teacher Education

To facilitate quality education for elementary school industrial arts personnel, it is recommended that:

1. Attention be given to both pre-service and in-service programs of teacher education with local conditions and circumstances suggesting which should receive priority.
2. Administrative and supervisory personnel at the state and local level study their needs and develop the program or programs which will best meet their needs.
3. Commitments be made on the part of school districts in terms of philosophy and financial support before in-service programs are initiated.
4. Industrial arts and elementary education disciplines

cooperate in bringing about an interdepartmental approach to achieve their common goals in all pre-service and in-service programs.

5. Some method of compensating teachers for participation in in-service programs be provided in the form of college credit, free tuition, public and professional recognition, subsistence, and/or released time.
6. In-service programs place emphasis on groups of teachers from one school system rather than single representatives from various schools.
7. In-service and graduate programs be provided to extend the preparation of experienced industrial arts teachers or elementary classroom teachers to that of specialists.
8. Local school districts and professional associations provide for secondary industrial arts teachers in-service programs which will develop an understanding of elementary school industrial arts.
9. The study of technology (industrial arts) be made a required part of the pre-service professional education of all elementary education majors and that in-service programs be initiated to provide this same training for experienced teachers.
10. All pre-service elementary teacher education programs include a minimum of six (6) semester hours of course work in elementary school industrial arts.
11. Pre-service professional education programs be provided to prepare specialists and consultants in the field of elementary school industrial arts.
12. State departments of education provide for certification of elementary school industrial arts specialists.
13. State departments of education include within the certification requirements of all elementary teachers six (6) semester hours credit in elementary school industrial arts.
14. A basic understanding of elementary school industrial arts be made a part of the professional prepa-

ration of all secondary industrial arts teachers.

15. Teacher educators who are to provide the leadership for pre-service and in-service programs in elementary school industrial arts have a background in industrial arts, elementary education, and child growth and development.
16. Leadership institutes be conducted to overcome the immediate shortage of teacher educators and supervisory personnel.
17. Regional and national leadership conferences be held annually.
18. Lines of communication be established between agencies at all levels to insure that a unified direction be taken in teacher education for elementary school industrial arts.

DISSEMINATION

Many programs of elementary school industrial arts are in operation throughout the nation, but little is known about them. One of the keys to the improvement of any program is the sharing of knowledge gained through practice. Dissemination of information can provide a much needed impetus for growth.

Individual and professional groups involved in or concerned with industrial arts should play a key roll in informing the educational profession, the public, and industry about elementary school industrial arts. Dissemination of information concerning elementary school industrial arts should be directed to the following:

Educational Profession

1. Administrators, state departments of education, and area supervisors
2. Teacher educators
3. School administrators
4. Teachers (applicable materials identifiable at all educational levels but speciffically for the elementary classroom teacher), kindergarten through college
5. School boards, architects, and school planners
6. Industrial educators—those concerned with technical and vocational programs
7. Curriculum specialists working in the areas of communications, social science, natural science, and mathematics
8. Audiovisual or education technology directors

Public

1. Legislative-national, state, local
2. Parent-teacher organizations
3. Elementary school student body
4. Civic organizations

Industry

1. Industrial management
2. Unions
3. Industrial organizations

The media most appropriate to inform educators, the public and industry regarding this most important educational program for children shall be determined by a central committee as instructional materials are compiled. Well prepared educational materials would provide groups or individuals with information concerning the philosophy and current direction of the ongoing elementary school industrial arts programs. Some of the kinds of materials that should be available are as follows:

1. Film strips and 35mm slide series dealing with the general philosophy, organization of programs, and facilities
2. Short 16mm color movies depicting children at work in typical elementary school industrial arts learning situations
3. Several self-contained visual display units applicable for conferences and conventions held by previously identified groups or organizations
4. Graphic brochures to accompany items 1, 2 and 3 listed above which could serve as an additional conveyance to other interested individuals
5. A general catalogue of materials (audio and video, printed matter, etc.) compiled from past and ongoing programs, individuals, and university programs which would give added direction to those seeking information about elementary school industrial arts
6. A video tape, expressly made for the television audience, telling the history of elementary school industrial arts and showing the future direction and

potential of this approach to learning by using scenes from different ongoing programs

7. A listing of speakers available in the various states or local areas who can describe and illustrate effective industrial arts programs
8. General 35mm slide packages with accompaning tape and brochures for use with programs of in-service or pre-service education
9. The establishment of a centralized location for the distribution of all materials, such as the national office of the American Industrial Arts Association

The development of materials such as these will require considerable work, extensive funding, and coordination. The work, some of which is already underway, will be the responsibility of individuals or small groups working closely together. Those working on individual projects will have to locate funding from personal funds, local school support, federal grants, or possibility foundation grants. The American Council for Elementary School Industrial Arts should coordinate these efforts, but it will be the responsibility of each individual to keep the council informed of work in progress and supplied with copies of or information about completed work. The address of ACESIA changes with each change of officers, but it can always be reached through the national office of the American Industrial Arts Association: 1201 16th Street, N.W., Washington, D.C. 20036.

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